WHAT IS CLAIMED IS:

1. A sensor formulation for simultaneously monitoring at least two components of a gas composition, comprising:

at least two fluorophores;

an acid-base indicator chromophore dye; and

a polymeric matrix,

wherein said chromophore dye and said at least two fluorophores are mixed within said polymeric matrix prior to the polymerization of said matrix.

2. A sensor formulation according to claim 1, wherein the first fluorophore is a fluorophore that responds to changes in the concentration of oxygen in a gas composition and said acid-base indicator chromophore dye responds to changes in the concentration of carbon dioxide in said gas composition to modulate the signal output of said second fluorophore.

3. A sensor formulation according to claim 2, further comprising two different silica powders, said two different silica powders being a first silica powder and a second silica powder; said first silica powder having a greater density as compared to said lighter density second silica powder, said fluorophore being coated on granules of said first silica powder and said second fluorophore being coated on said second silica powder.

4. A sensor formulation according to claim 1, wherein said chromophore dye is evenly disbursed within said polymeric matrix.

5. A sensor formulation according to claim 2, wherein said first fluorophore is segregated from said second fluorophore within said polymeric matrix.

6. A sensor formulation according to claim 1, wherein said polymeric matrix comprises at least two premixture ingredients, a first polymer component and a second crosslinker component.

7. A sensor formulation according to claim 6, wherein said first polymer component is a vinyl terminated polydimethylsiloxane and said second crosslinker component is a polymethylhydrodimethylsiloxane copolymer or a mixture of a vinyl terminated polydimethylsiloxane and a polymethylhydrodimethylsiloxane copolymer.

8. A sensor formulation according to claim 6, wherein said polymeric matrix further comprising premixture ingredients of a catalyst and an inhibitor.

9. A sensor formulation according to claim 8, wherein said catalyst is a platinum catalyst.

10. A sensor formulation according to claim 9, wherein said polymeric matrix further comprises an inhibitor.

11. A sensor formulation according to claim 10, wherein said inhibitor is cyclic vinylmethyl-dimethylsiloxane.

12. A method for detecting the presence of respiring microorganisms comprising:

providing a sensor formulation, said formulation comprising

a fluorophore, said fluorophore being responsive to changes to changes in oxygen concentration in a gas composition;

a first silica powder having individual granules, said fluorophore coating said granules of said first silica powder to provided a first fluorophore coated silica,

an acid-base indicator chromophore dye, said acid-base indicator dye being responsive to changes in Carbon dioxide concentration in a gas composition;

a fluorophore, said fluorophore signal output being modulated by said acid-base indicator chromophore dye;

a second silica powder having individual granules, a second fluorophore coating said granules of said second silica powder to provide second fluorophore coated silica; said second silica powder being of lesser density than said first silica powder;

a polymeric matrix wherein said acid-base indicator chromophore is evenly distributed and said fluorophore coated silicas are segregated from one another within said polymeric matrix due to the different densities of said first silica powder and said second silica powder;

providing a fluorescence reading device having at least a first sensor element and a second sensor element; said first sensor element being tuned to the same wavelength of said first fluorophore and said second sensor element being tuned to the same wavelength of said second fluorophore;

providing a microorganism for monitoring;

exposing said microorganism to said sensor formulation in the presence of said fluorescence reading device; and

recording the response of said first sensor element and said second sensor element to said microorganism.

13. The method according to claim 13, wherein said fluorophore is Tris (4,7-diphenyl-1, 10 phenanthroline) Ruthenium Chloride Pentahydrate/Ruthenium (II) Chloride Hydrate Fluorophore.

14. The method of claim 13 wherein said second fluorophore is 1.1',3,3,3'3'-Hexamethyllindodicarbocyanine iodide dye.

15. The method according to claim 13, wherein said acid-base chromophore indicator dye is Cresol Red dye.

16. The method according to claim 13, wherein said acid-base indicator dye is Bromethylol Blue.

17. A method for monitoring the effects of a composition on the metabolism of a microorganism comprising:

providing a sensor formulation, said formulation comprising

a first fluorophore, said fluorophore being responsive to changes to changes in oxygen concentration in a gas composition;

a first silica powder having individual granules, said fluorophore coating said granules of said first silica powder to provided fluorophore coated silica,

an acid-base indicator chromophore dye, said acid-base indicator dye being responsive to changes in Carbon dioxide concentration in a gas composition;

a second fluorophore, said second fluorophore having a signal output being modulated by said acid-base indicator chromophore dye;

a second silica powder having individual granules, said second fluorophore coating said granules of said second silica powder to provide acid-base indicator dye coated silica; said second silica powder being of lesser density than said first silica powder;

a polymeric matrix wherein said acid-base indicator chromophore is evenly distributed and said fluorophore coated silicas are segregated from one another within said polymeric matrix due to the different densities of said first silica powder and said second silica powder;

providing a fluorescence reading device having at least a first sensor element and a second sensor element; said first sensor element being tuned to the same wavelength of said first fluorophore and said second sensor element being tuned to the same wavelength of said second fluorophore;

providing a microorganism for monitoring;

exposing said microorganism to a composition to be tested for its effect on the metabolism of said microorganism;

exposing said microorganism to said sensor formulation in the presence of said fluorescence reading device; and

recording the response of said first sensor element and said second sensor element to said microorganism.